

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE NORTHERN DISTRICT OF OKLAHOMA
3
4 STATE OF OKLAHOMA, ex rel.)
5 W.A. DREW EDMONDSON, in his)
6 capacity as ATTORNEY GENERAL)
7 OF THE STATE OF OKLAHOMA,)
8 et al.)
9)
10 Plaintiffs,)
11 vs.) CASE NO. 05-329-GKF-PJC
12)
13 TYSON FOODS, INC., et al.,)
14)
15)
16 Defendants.)

17 TRANSCRIPT OF NONJURY TRIAL PROCEEDINGS
18 JANUARY 26, 2010
19 BEFORE GREGORY K. FRIZZELL, U.S. DISTRICT JUDGE
20 VOLUME 99, A.M. SESSION

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JANUARY 26, 2010:

MR. GEORGE: I can report on that, Your Honor. And I apologize, it's taken a little more time than I anticipated. I reviewed a draft last night. I think we're very close to having something to submit for your review on that point. And I propose that we make the submission midday tomorrow, if that's okay.

MR. GEORGE: I agree with that entirely,
Your Honor, and we'll get something for the court's

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1 consideration tomorrow on that point, as well as any
2 other midtrial rulings that the court has made.

3 THE COURT: Well, but my understanding is
4 that only 52(c) requires findings and conclusions.

5 MR. GEORGE: That's correct.

6 THE COURT: All right.

7 MR. GEORGE: Thank you.

8 THE COURT: Let's continue.

9 MR. PAGE: Your Honor, I pass the witness.

10 THE COURT: Very well. Mr. Ehrich.

11 MR. EHRICH: May I inquire?

12 THE COURT: Yes.

13 DR. SCOTT WELLS,
14 having been previously duly sworn, was called as a
15 witness and testified as follows:

16 CROSS-EXAMINATION

17 BY MR. EHRICH:

18 Q. Dr. Wells, good morning. Good to see you
19 again.

20 A. Good morning.

21 Q. During yesterday's testimony, you indicated
22 that you thought that the question of whether your
23 model could produce identical runs, results after
24 identical runs, was ultimately a minor issue. Is
25 that a fair characterization of what you said?

1 A. What I was doing was characterizing what the
2 defendant claimed in his report, based on his
3 considered materials. And, therefore, what he did
4 and what he presented and testified about was
5 insignificant.

6 Q. Now, Dr. Wells, you, in another life, teach
7 students, do you not?

8 A. Yes, I do.

9 Q. You agree it's important for your students to
10 be as accurate as possible in their coursework? Do
11 you agree with that?

12 A. Oh, of course.

13 Q. And in science, a key issue, you'd agree, is
14 whether results of experiments can be reproduced?
15 That's an important step in the scientific method,
16 correct?

17 A. That's correct.

18 Q. And in science, we use a variety of tools to
19 conduct our experiments, to try to figure out what's
20 really going on in the world, correct?

21 A. Yeah, it depends on what you mean by "tools."
22 I'm not quite clear.

23 Q. Sure, and that's exactly my point. Whether
24 something is important or not depends, at least in
25 part, on the tool that you use and what sort of

1 results one could reasonably expect from that tool,
2 correct?

3 A. That's correct.

4 Q. Well, here, you looked a little puzzled. Let
5 me give you a common sense example. For example, if
6 we were to buy together a calculator at the local
7 Wal-Mart store, we might set up a little
8 experiment. So, for example, let's say you add 10
9 plus 10 three times, okay? The first time you do,
10 10 plus 10 equals 20. The second time, 10 plus 10
11 equals 19.8. The third time, 10 plus 10 is 20.2.
12 You understand that scenario?

13 A. Yeah, I understand what you're saying.

14 Q. So we can agree that at least for that
15 application, we'd conclude that there's probably
16 something wrong with that calculator, wouldn't we?

17 A. For that very basic or very simple example,
18 yes.

19 Q. We wouldn't accept -- strike that.

20 We wouldn't expect that if we were
21 publishing this result to people that they would
22 accept our assurances that, oh, never mind, you
23 know, 19.8, 20.2, that's close enough to 20. In
24 that application, we wouldn't accept that result?

25 A. That's correct.

1 Q. Now, Dr. Wells, isn't it true that Dr. Bierman
2 isn't the only person who has noted that version 3.6
3 of your CE-QUAL-W2 model doesn't precisely
4 replicate, that is the results aren't the same in
5 duplicate runs; he's not the only one who's noted
6 that, correct?

7 A. There was an example where HydroQual in New
8 Jersey did runs that were not replicatable. That
9 was primarily initially due to their lack of
10 experience and understanding of how to compile the
11 code.

12 Q. Isn't it also true that you were involved in a
13 TMDL for the Spokane River involving dissolved
14 oxygen?

15 A. Yes.

16 Q. And you indeed are the contract -- the modeling
17 contractor for EPA and for the Washington Department
18 of Ecology; isn't that right?

19 A. I think it's through EPA.

20 Q. I stand corrected. It's true, isn't it, that
21 in that TMDL, there have been some concerns
22 expressed that the 3.6 version of this lake model
23 doesn't precisely replicate the dissolved oxygen
24 output? Isn't that true?

25 A. There was some words to that effect, but no

1 evidence was presented by HydroQual.

2 Q. Well, isn't it true that HydroQual's criticism
3 was that dissolved oxygen may vary between these
4 duplicate runs to a tenth or so milligram per liter
5 of dissolved oxygen? Have you heard those words?

6 A. No, I haven't heard those exact words. But we
7 did do a test in terms of replication, and we found
8 that 99.99 percent of the model results in the
9 Spokane River were within .09 milligrams per liter
10 of dissolved oxygen, which is obviously below even
11 independent people measuring dissolved oxygen below
12 the detection limit.

13 Q. Let's get at it this way. Yesterday in your
14 testimony, you said that there might be a number of
15 reasons that duplicate runs of your model might not
16 produce identical, if you will, results; that is, it
17 might not replicate, correct?

18 A. That's correct.

19 Q. Among those reasons, you pointed out it might
20 be inexperience of the modeler; is that correct?

21 A. That's correct.

22 Q. Might be the modeler might be using erroneous
23 input files; that is, they don't match with what the
24 original run was, correct?

25 A. I didn't say that.

1 Q. I stand corrected. That could be a result -- a
2 reason that the duplicate runs might not match up,
3 correct?

4 A. Could you explain that scenario.

5 Q. I'm sorry. Different input files. One input
6 file is used for one run and another input file is
7 used for another one. You'd expect that there
8 wouldn't be duplicate or replicatable results there?

9 A. You'll have to narrow that down a little bit.
10 It's a little vague for me. It depends on the kind
11 of differences you're looking at in the different
12 input files.

13 Q. Understood. But that might be a possible
14 reason that you wouldn't get runs that are
15 identical?

16 A. Could be.

17 Q. Correct. You might be using different
18 compilers, if I remember correctly what you said
19 yesterday. That may also be a reason why you
20 wouldn't get identical runs?

21 A. That is correct.

22 THE COURT: Back up just a second. When
23 you use the term "compilers," what is meant,
24 Mr. Ehrich?

25 MR. EHRICH: Shall we ask the witness?

1 THE COURT: Because I have no idea. Are we
2 talking about software? What are we talking about?

3 MR. EHRICH: I understand it as software,
4 but perhaps we better ask the witness.

5 THE WITNESS: Basically a model is a set of
6 instructions written in a particular language,
7 computer language. And this particular model was
8 written in Fortran 90/95/2003. It's a particular
9 language. And you need a compiler, which is a piece
10 of software that interprets those instructions into
11 what we call a model executable so that you can
12 actually run it on a computational platform.

13 So it actually interprets the instructions
14 and creates code that can then be run on either a
15 PC, a MAC, a Linux box or other -- you know, a super
16 computer, etcetera. There are many different
17 compilers that are available on different platforms.

18 THE COURT: The difficulty I'm having in
19 talking about -- or hearing this talk about
20 different input files and different compilers, it
21 would seem to me that one could only claim
22 replication problems if you're dealing with the same
23 input files and the same compilers. The same
24 inputs, different results. Could you-all flesh that
25 out here.

1 MR. EHRLICH: We can. In fact, you've
2 anticipated where we're heading.

3 Q. (By Mr. Ehrlich) So, Dr. Wells, if a modeler
4 used the same input file, the same compiler, that is
5 the same executable, and the identical computer
6 including the identical processors, you would expect
7 that duplicate runs would be identical, would you
8 not?

9 A. You would expect -- you would hope that they
10 would be reasonably the same, absolutely.

11 Q. I mean out to four, six, eight significant
12 digits, you would expect that, wouldn't you?

13 A. It depends on if you're doing just simple
14 calculations. For example, like your illustration
15 of the calculator was three different additions,
16 which is quite different compared to, let's say, a
17 CE-QUAL-W2 model run which includes hundreds of
18 millions of calculations.

19 And one of the things that the CE-QUAL-W2
20 model does which may affect this very insignificant
21 reproducibility factor has to do with how it deals
22 with the fact that the model, as it moves along in
23 time, sometimes decides that it's going numerically
24 unstable.

25 Now, what that means is it's operating in a

1 time step much higher than it should be, and it
2 catches itself and it goes back and redoes a
3 calculation. Now, in some cases where it reaches
4 that point of numerical instability, it may reach
5 out to a memory location somewhere that may be
6 different from one run to another.

7 That is one of the five reasons -- in fact,
8 yesterday during my testimony, as I reviewed it, I
9 only mentioned four and I forgot the fifth one, had
10 to do with this idea of time stepping and the
11 approach to numerical instability and then backing
12 off on that.

13 And in my mind, with the OpenMP, which is
14 the multiple processors, sometimes it reaches a
15 different memory location and pulls a different
16 value in, which sometimes leads to this
17 insignificant reproducibility factor.

18 Q. But you would not expect that result if one
19 used the single processor; that is, it's less likely
20 for the outcome you described to happen with a
21 single processor?

22 A. That is correct.

23 Q. Now, you mentioned in the Spokane River
24 dissolved oxygen TMDL, there were comments by
25 HydroQual. HydroQual, if I understand correctly, is

1 working with one of the point source dischargers to
2 the river, right?

3 A. That's correct.

4 Q. That is, so that discharger has an interest in
5 evaluating the outcome, the science underlying that
6 TMDL, correct?

7 A. I would hope so.

8 Q. And in this case, Dr. Bierman, retained by the
9 defendants, has an interest or had an interest in
10 evaluating the outcomes predicted by your model.
11 You'd agree that's a pretty common sense thing that
12 happens in litigation, right?

13 A. I guess so.

14 Q. So you're not criticizing Dr. Bierman for
15 trying to take apart your model and see whether, in
16 fact, he could make it produce the same things, the
17 same output you did, right?

18 A. Could you rephrase that question?

19 Q. Well, Doctor, you're not suggesting that there
20 was anything inappropriate, that wasn't good science
21 in Dr. Bierman's taking apart your model and trying
22 to make it produce the same outcome that you noted
23 in your report? Nothing inappropriate about that?

24 A. No, but his conclusions based on that were, I
25 think, hyperbole.

1 Q. But you know that Dr. Bierman, in fact, was
2 unable to make the model replicate, and that led to
3 communications between your team and his team,
4 correct? Do you remember that?

5 A. We did not receive any communications from
6 Dr. Bierman after our one conference call discussing
7 how to run the model.

8 Q. And you provided responses identifying the
9 precise input files, the precise compiler executable
10 and the computers that you used in your model,
11 remember that?

12 A. Yes, there was some probably e-mail
13 correspondence.

14 Q. Right. In using -- and you've read
15 Dr. Bierman's testimony -- using those instructions
16 from you, he could not make the model replicate, at
17 least by his lights, correct?

18 A. When I looked at his considered materials, it
19 was the chart that I produced yesterday, that was
20 the result of one of his replication tests. And if
21 you looked at the average difference in temperature
22 for the whole time period, it was 0.003 degrees
23 Celsius difference between the two, which is not
24 measurable.

25 Q. Again, a step in the process that was

1 appropriate?

2 A. It could be.

3 Q. Let's do this. We've heard lots of testimony
4 in this case, from Dr. Engel, from you, about
5 loadings that were used in your lake model, both for
6 calibration and for the predictions, future
7 predictions and the hindcast. And it's clear that
8 your model requires some input of soluble reactive
9 phosphorus; is that right?

10 A. That is correct.

11 Q. And you asked Dr. Engel to provide you soluble
12 reactive phosphorus data for the calibration period
13 of January 1, 2005 to September 28, 2007, correct?

14 A. No, that's not correct. I did not ask him for
15 the data.

16 Q. You understood he was going to provide that?

17 A. I asked him for the LOADEST regression, but
18 that is not the data.

19 Q. I understand that. What the LOADEST does is
20 provide a way to estimate concentrations of
21 phosphorus for those days for which there is not an
22 actual observed measurement, if you will, actual
23 data?

24 A. That is correct.

25 Q. Okay. And he provided you this LOADEST time

1 series; that is, daily values for each of the days
2 in those -- in that calibration period, correct?

3 A. That is correct.

4 MR. EHRICH: Could we bring up the
5 demonstratives which have been labeled Oklahoma
6 Exhibit 5406, 5409, and 5412.

7 Q. (By Mr. Ehrich) Dr. Wells, can you see the
8 screen?

9 A. They're a little bit fuzzy.

10 Q. When we need to, I'll ask that they be
11 enlarged. Thank you.

12 Each of these graphs has a blue line; that
13 is, there's one for the Illinois River, there's one
14 for Barren Fork, there's one for Caney Creek. And
15 each has a blue line that is the time series of
16 daily loadings that were provided by Dr. Engel; is
17 that right?

18 A. That is correct. I should correct that. It's
19 not Dr. Engel's -- Dr. Engel's LOADEST regression is
20 part of that blue line, but the blue line has been
21 altered. So it's not just Dr. Engel's --

22 Q. You've anticipated me. Where it's been altered
23 is where the blue line, if you will, leaps up or
24 leaps down, touch the actual data points that you
25 inserted in your work before the calibration run; is

1 that correct?

2 A. Correct. The discrete data points in red, or
3 for the Illinois River I think there's some in
4 green, are the actual measured field data at those
5 sites. And those are where we did an interpolation
6 a few days before and a few days after to reach down
7 and -- reach up and grab those data points.

8 MR. EHRLICH: Could we expand 5406 or put it
9 by itself on the screen?

10 THE WITNESS: That's better.

11 Q. (By Mr. Ehrlich) So what you're saying, if I
12 understand correctly, is that where there is a red
13 square or a green triangle, that represents actual,
14 that is observed data, for soluble reactive
15 phosphorus?

16 A. That is correct.

17 Q. And where there isn't such a symbol, that is a
18 red square or a green triangle, then the values
19 represented on that curve are from Dr. Engel's
20 LOADEST calculation?

21 A. That is correct.

22 Q. Got it. Now, will you agree with me that the
23 number of days in the calibration period between
24 January 1 of 2005 and September 28 of 2007 is, if
25 the map is right, 1002 days?

1 A. I'd have to get my calculator out and make sure
2 it's a calculator that works and do that.

3 Q. But you'd accept that. I mean, that seems
4 right, doesn't it?

5 A. Yeah, it's the right order of magnitude.

6 Q. Sure. Will you agree with me that the number
7 of actual data points shown on Oklahoma Exhibit, I
8 guess, Demonstrative 5406 for the Illinois River,
9 that is -- is 77. That is, for 77 days, you've got
10 actual SRP data?

11 A. Could be on that order of magnitude. I'd have
12 to count them.

13 Q. It's close.

14 A. It would not be unreasonable, just looking at
15 the number of points.

16 Q. Right. You know, so will you agree with me
17 that there are 925 days for which you don't have
18 actual SRP data and, instead, have the values
19 calculated by Dr. Engel?

20 A. That's correct. The data does not exist for
21 that time period.

22 Q. Right. So that if Dr. Bierman's criticism is
23 correct, that is Dr. Engel provided not SRP data but
24 soluble phosphorus data, you've got 925 days that
25 contains soluble phosphorus data; is that right --

1 or soluble phosphorus values; is that right?

2 A. Can you rephrase your question.

3 Q. Sure, that's a bad question.

4 If Dr. Bierman's criticism of how Dr. Engel
5 calculated loadings to give to you for your
6 calibration is correct, what that means is you have
7 925 days of loading values, daily values that are
8 not soluble reactive phosphorus but, instead, are
9 based on soluble phosphorus?

10 A. Unfortunately, that's not correct; and the
11 reason why it's not correct is that we didn't just
12 use actual data on that particular day. We also
13 took, if I remember right -- I'd have to go back and
14 look -- three or six days before and three or six
15 days after to smooth the curve to reach those data
16 points.

17 So, actually, every data point, there's a
18 little time window of about a week around each data
19 point where that data point influences that line.
20 So take those 73 data points and then add seven more
21 days, approximately, on top of each of those date
22 points, and you have a much different time series
23 record that's influenced by the data.

24 Q. What that means, though, is you still have --
25 if Dr. Bierman is correct, you still have a

1 substantial fraction of those points where you have
2 neither actual SRP data or interpolated SRP data;
3 and, instead, you have, if Bierman is right, values
4 that are based on soluble phosphorus and not soluble
5 reactive phosphorus. That's right, isn't it?

6 A. Yes. So if you took a data point and you took
7 a week -- let's say, three or four days on either
8 side of that data point, any of the blue lines three
9 or four days outside that data point would not be
10 influenced by that data point.

11 Q. So now let's bring up Exhibit -- Demonstrative,
12 I guess, 5409, which is the Barren Fork. Would you
13 agree with me, Dr. Wells, that you had actual, that
14 is observed, SRP data for 45 days in this 1002
15 calibration period for Barren Fork?

16 A. It seems the right order of magnitude.

17 Q. Let's go to Exhibit 5412. And this is Caney
18 Creek, is it not?

19 A. Yes, it is.

20 Q. Would you agree with me that you have actual
21 SRP data for Caney Creek over this 1002 day
22 calibration period of 23 days, does that sound
23 right?

24 A. It looks approximately correct, uh-huh.

25 Q. And, Dr. Wells, you have not testified at least

1 -- strike that.

2 You haven't, in your deposition or in this
3 trial testimony, testified that you had, in fact,
4 gone back to Dr. Engel's LOADEST calculation to
5 verify whether he used soluble phosphorus data or
6 soluble reactive phosphorus. You just haven't done
7 that, have you?

8 A. That is correct.

9 Q. Okay. Now, let's turn to this. I was struck
10 by your testimony yesterday that your lake model
11 exists, if I remember the phrase, independently from
12 the -- from what's happening up in the watershed.
13 Do you remember that?

14 A. I think you may have misunderstood what I was
15 trying to say.

16 Q. Well, let's talk about that. If your
17 calibration is correct, do I understand your
18 testimony correctly that your lake model will
19 accurately predict water quality in the lake given a
20 particular load of phosphorus at the gauging
21 stations at the head of Lake Tahlequah?

22 A. Correct. The model does, to a reasonable
23 degree, reflect what's going on in the lake.

24 Q. If your calibration is correct? And I
25 understand you say it is, but that's --

1 A. Yes.

2 Q. Right. But you agree, do you not, that your
3 lake model requires someone to specify what the
4 phosphorus loading is at the gauging stations at the
5 head of Lake Tahlequah?

6 A. That is correct.

7 Q. And in this case, it was Dr. Engel who provided
8 those loadings to you from his linked GLEAMS routing
9 model output, right? That is, from his predictions
10 and his hindcast.

11 A. Not for the calibration model.

12 Q. I understand that. Let's try it again. So for
13 the predictions, future predictions, future
14 scenarios and the hindcast, it was Dr. Engel's
15 output, that is from his model, that you then used
16 in your lake model?

17 A. Yes, of course.

18 Q. Okay. If I understand correctly, what you did
19 with that -- those loadings is to break those total
20 phosphorus loadings apart -- sorry, that's how I
21 think about it -- using a regression analysis to
22 specify certain components of phosphorus, and then
23 those numbers were in turn fed into your model? Is
24 that a common sense way of thinking about it?

25 A. That's a very big, broad-brush approach.

1 Q. But you didn't evaluate those loading -- the
2 loadings provided by Dr. Engel from his model; that
3 is, you didn't independently evaluate the outputs
4 from his various future scenarios or his hindcast,
5 correct?

6 MR. PAGE: Objection, Your Honor, asked and
7 answered. Irrelevant.

8 THE COURT: Response.

9 MR. EHRLICH: Well, Your Honor, I think that
10 this is -- this is really at the heart of what
11 Dr. Wells did and, more importantly, what he didn't
12 do. I think we're focusing on where his model fits
13 in the link of the causation chain. So if you'd
14 allow me, I think I can move quickly on from this
15 to, I think, the central point.

16 THE COURT: How is this relevant here? You
17 say -- your question is, didn't evaluate those
18 loadings, that is you didn't independently evaluate
19 the outputs from his, Engel's, various future
20 scenarios or his hindcast.

21 Put this in context for me. How is that
22 relevant to Wells' testimony?

23 MR. EHRLICH: Perhaps I should withdraw the
24 question and try it this way. I think I can be more
25 direct, Your Honor.

1 THE COURT: All right.

2 Q. (By Mr. Ehrich) Let's try it this way. When
3 Dr. Engel issued an errata to account for the error
4 that had been made, which didn't account for half
5 the watershed, you had to issue an errata, too?

6 A. That's correct.

7 Q. If the future loadings predicted in the various
8 scenarios by Dr. Engel's model are found by this
9 court, for whatever reason, to be flawed, then your
10 lake model predictions are flawed as well in the
11 sense that they may not correspond to the reality of
12 what's going on in the watershed; isn't that right?

13 A. Well, I don't think you can say the lake
14 predictions are flawed, because what's happening is
15 the model is just responding to a loading. And as
16 you crossed me on -- during my direct testimony, it
17 doesn't differentiate between different sources of
18 P. It's just looking at total P and the different
19 components that are used in the model.

20 So what you're looking at is how does the
21 lake respond to changes in the watershed, whether
22 they increase or decrease. So that is what you're
23 looking at in the model. So in that particular
24 context, the model is not flawed.

25 Q. So if I understand you correctly, your model is

1 going to accurately predict how the lake will
2 respond to any given phosphorus loading to the lake,
3 correct?

4 A. That is correct.

5 Q. Okay. But whether that phosphorus loading to
6 the lake is an accurate representation of reality,
7 your lake model just simply doesn't address?

8 A. That's true. It's an irrelevant question for
9 my model.

10 Q. So, for example, your lake model doesn't say
11 anything about the sources of the phosphorus loading
12 to the lake?

13 A. That is correct.

14 Q. So your lake model doesn't say anything about
15 whether wastewater treatment plants, for example,
16 are the dominant source of soluble reactive
17 phosphorus to the gauging stations above the lake?

18 MR. PAGE: Your Honor, I think this is
19 getting irrelevant and beyond the scope of
20 rebuttal. Clearly talking about sources is not
21 something that resembled anything in this testimony.

22 THE COURT: Sustained.

23 Q. (By Mr. Ehrich) Given that your model doesn't
24 -- does not have a focus as to what's happening in
25 the watershed and, instead, only focuses on the

1 response of the lake to a given phosphorus loading,
2 if those phosphorus loadings do not correspond with
3 reality, what's really going on in the watershed,
4 your outputs then will not correspond to reality
5 either?

6 A. Could you explain a little bit more what you
7 mean by --

8 Q. Sure. Let's take it this way. If the
9 phosphorus loading -- if Dr. Engel's phosphorus
10 loading to the lake is, say, 10X, what you're saying
11 is, if your model is properly calibrated, it will
12 predict water quality and dissolved oxygen
13 accurately in the lake, correct?

14 A. Yes, uh-huh.

15 Q. If, instead, reality is the loading to the lake
16 is only X, your model is going to accurately
17 predict, you say, the response of the lake to that X
18 loading, correct?

19 A. Uh-huh.

20 Q. But whether the loading to the lake is 10X or
21 X, your model simply doesn't say?

22 A. That's correct.

23 Q. So at the end of the day, again, I'm struck by
24 your testimony that your model is -- you know,
25 operates independently. If this court, for whatever

1 reason, finds that Dr. Engel's phosphorus loading
2 predictions are wrong, then although your lake model
3 will accurately predict whatever loading there is,
4 you can't say that those outcomes really correspond
5 to reality? It just doesn't answer that question.

6 A. Yes, as I already testified, it doesn't ask any
7 questions in the watershed.

8 Q. Got it.

9 MR. EHRICH: That's all I have. Thank you.

10 THE COURT: Mr. Page.

11 REDIRECT EXAMINATION

12 BY MR. PAGE:

13 Q. Just a couple of questions, Doctor. I'm going
14 to ask you about the temperature test. Did
15 Dr. Bierman provide any analysis as to whether or
16 not if his temperature fluctuations were true, for
17 the red -- did it have any impact on the results for
18 your model?

19 A. He never ran -- could you rephrase that.

20 Q. What I'm trying to find out is whether or not
21 there was any tests done by Dr. Bierman to determine
22 whether or not those fluctuations that he observed
23 had any impact on the modeling results.

24 A. I didn't see anything in his report or
25 testimony to the effect that he actually was able to

1 show that the model produced a different result as a
2 result of those fluctuations.

3 Q. And it's your opinion, sir, that those
4 fluctuations, if they did exist, are immaterial; is
5 that correct?

6 A. Yes.

7 MR. MCDANIEL: Objection, leading.

8 THE COURT: Rephrase, please.

9 Q. (By Mr. Page) Do you believe that those
10 fluctuations, if they did exist, are material?

11 A. I don't believe that those fluctuations
12 influenced the result of the model.

13 Q. With regard to the SRP data issues that we
14 talked about here this morning, did Dr. Bierman make
15 any runs of your model with his claimed revised or
16 properly calculated SRP data to see if it would make
17 any difference?

18 A. No, he didn't. But that would have been a
19 great test for him to do, to see if the model
20 results were different.

21 Q. Thank you, sir. I have no other questions.

22 THE COURT: Recross.

23 MR. EHRICH: No, Your Honor.

24 THE COURT: Very well. You may step down.

25 MR. PAGE: Your Honor, that ends the

1 State's rebuttal case.

2 THE COURT: Surrebuttal.

3 MR. GEORGE: Your Honor, we do not intend
4 to call any witnesses in surrebuttal. Mr. Tucker is
5 walking to the podium. He must have something he
6 wants to say.

7 MR. TUCKER: I do not intend to dispute
8 Mr. George, Your Honor. But I would make the sage
9 observation brought about by my many, many years of
10 experience that there's nothing like an impending
11 ice storm to move along a case.

12 The defendants come at the close of this
13 and ask the court under Rule 201 to take judicial
14 notice of two items that have occurred in this
15 moving-target case subsequent to our last meetings.

16 The first would be an item that appeared in
17 the Federal Register January 19, 2010 which relates
18 directly to the TMDL which is under development by
19 the EPA for the Illinois River Watershed.

20 THE COURT: So the papers were right.

21 MR. TUCKER: And as Your Honor will note in
22 looking at this item, there are five items on which
23 the EPA has requested -- or six items which the EPA
24 has requested or invited data be submitted by
25 outside parties, and three of those data

1 specifically relate to nonpoint sources.

2 In fact, they refer to nonpoint source
3 loading rates for nutrients by source categories.
4 They refer to agronomic practices, poultry
5 practices. They ask questions about locations of
6 poultry houses, feedlots, pastures and cattle in the
7 watershed.

8 The second item which we would like to ask
9 the court to take judicial notice of, which is -- I
10 would say it's readily locatable on the EPA website,
11 but kind of like listening to Mr. George read
12 through those formulas yesterday, I would not begin
13 to task the court reporter with that.

14 So instead I have taken the liberty of
15 putting the EPA web link on the page at the top of
16 the document, which is a letter to the Secretary of
17 Natural Resources of Virginia by the EPA relating to
18 the Delmarva Peninsula Chesapeake Bay program which
19 under Rule 201 would be a letter defining by the EPA
20 their view of a TMDL and its relationship to the
21 analysis of nonpoint sources.

22 Specifically, they refer to the TMDL having
23 as its obligation -- one of its many obligations in
24 the Chesapeake Bay, to develop appropriate
25 mechanisms to ensure that nonpoint source load

1 allocations are achieved.

2 That would be the two requests the court
3 (sic) would make for taking judicial notice. For
4 purposes of the record, we've identified the first
5 document. As Howard explains it, everything must
6 have a number, or it doesn't exist in his world.

7 THE COURT: The fact that it doesn't exist
8 in Mr. Overton's world isn't definitive, but the
9 Federal Register, I think, has an independent
10 existence separate and apart from Mr. Overton or
11 this court.

12 MR. TUCKER: The citation for that would be
13 Volume 75, No. 11, Tuesday, January 19, 2010/Notices
14 at -- appearing at page 2860, and it's agency letter
15 FRL-9104-4.

16 The other item --

17 THE COURT: Now, that's an easier matter, I
18 think, than the second. Any objection as to the
19 request for judicial notice as to that first item?
20 Mr. Nance.

21 MR. NANCE: Your Honor, we do object. The
22 evidence is closed, and the defendants have
23 announced they have no surrebuttal. I think the end
24 has come.

25 Also, we've had no notice under 201 that

1 they intend to offer this. So all of the evidence
2 that is before the court is now before the court.
3 Both sides have rested, and rebuttal and surrebuttal
4 are completed.

5 THE COURT: Of course, the topic was
6 broached in the case-in-chief, correct, or the
7 defense portion of the case?

8 MR. NANCE: The defense portion of the case
9 did mention the EPA TMDL, but that doesn't change
10 the fact that the evidence is closed.

11 MR. TUCKER: I believe Mr. George said --
12 and I didn't mean to interrupt if you're not
13 finished.

14 MR. NANCE: I think I've made my point.
15 Both sides have rested, and there's no surrebuttal.

16 MR. TUCKER: Mr. George made the point that
17 we weren't offering any more testimony in
18 surrebuttal. I would also note under 201, as
19 Professor Weinstein reports -- or Judge Weinstein
20 reports in his book at 201.32 --

21 THE COURT: Ms. Moll, who is the
22 evidentiary guru is --

23 MR. TUCKER: Making her notes.

24 THE COURT: -- making notes.

25 MR. TUCKER: Notice may be taken at any

1 stage of the proceedings, and we're certainly still
2 in the proceedings because the defendant has not yet
3 even submitted its close of the case motions. And
4 with -- as far as the notice is concerned, as I read
5 Mr. Weinstein -- and I'm not sure if it's judge -- I
6 think it is. It is Judge Weinstein, isn't it,
7 Judge?

8 THE COURT: I believe so.

9 MR. TUCKER: If I'm correct, Judge
10 Weinstein is conducting a proceeding today in New
11 York that may be of great interest to this court.

12 In any event, the -- he also says that when
13 you're not in trial, then it's recommended that you
14 give notice by written filing. When you are in
15 trial, it's recommended that you give notice in open
16 court, which is what we did today.

17 THE COURT: 201(c) allows the court to take
18 judicial notice, whether requested or not. And it
19 may well be that this first item in the Federal
20 Register is something that would be proper -- a
21 proper subject of judicial notice, given that this
22 is a dynamic set of facts and the topic was touched
23 upon during the defendants' portion of the case.

24 We'll allow defendants' obviously to
25 suggest that as one of their proposed findings of

1 fact. I won't decide that here today.

2 Now with respect to item No. 2, that's
3 really a different matter entirely, it seems to me.

4 Anything further?

5 MR. TUCKER: In support of that, Your
6 Honor?

7 THE COURT: Yes.

8 MR. TUCKER: Yes. I would call the court's
9 attention to again Weinstein's Federal Evidence,
10 Section 201.12 Subsection (6).

11 First Circuit decision in which the Circuit
12 Court took judicial notice of a letter written by
13 the Secretary of War accepting exclusive
14 jurisdiction over all lands in Puerto Rico
15 transferred to the United States for military
16 purposes.

17 Likewise, in the Tenth Circuit in 1991, in
18 *Kapcia v. Immigration & Naturalization Service*,
19 944 F.2d 702 at 705 and 706, Tenth Circuit approved
20 judicial notice of the BIA's administrative notice
21 that solidarity became a part of the Polish
22 Coalition government.

23 Obviously neither of those have to do with
24 TMDLs, poultry litter or the EPA, but they do have
25 to do with the fact that under 201(d) that the court

1 can take judicial notice of matters which are from a
2 federal agency which are for purposes -- for all
3 purposes -- intents and purposes undisputed.

4 And this is a document which is widely
5 available on the EPA's website. The fact that it is
6 a letter of the EPA is undisputed, and will be
7 offered for the purpose of demonstrating in response
8 to the supplemental discussions that took place
9 during the defendants' case that TMDLs do indeed
10 extend to nonpoint sources as a part of their
11 determination of allocation of responsibility, which
12 is contrary to the position that was taken by the
13 plaintiffs previously in the case.

14 THE COURT: Well, this is the first that
15 I've been presented this. In the first paragraph,
16 apparently President Obama, in May of 2009, issued
17 an Executive Order relative to the Chesapeake Bay
18 entitled the Chesapeake Bay Protection and
19 Restoration Executive Order. He's entered no such
20 order relative to Lake Tenkiller.

21 I suppose you all can suggest that in your
22 proposed findings and conclusions. I'm doubtful
23 that it has any relevance here. You're saying that
24 generally the EPA is taking the position that TMDLs
25 now are taking into account nonpoint source?

1 MR. TUCKER: Yes. That goes to the point
2 that we made during our case-in-chief to the effect
3 that the EPA's TMDL, which is under way for this
4 watershed, will consider nonpoint sources and will
5 allocate nonpoint sources along with point sources
6 in determining the maximum daily loads for the
7 Illinois River Watershed.

8 THE COURT: Is that what's set forth here
9 in the Federal Register? Does it specifically talk
10 about the subject matter encompassing nonpoint
11 source?

12 MR. TUCKER: What this does, is it says
13 that the EPA is developing a watershed model. The
14 results of this model may be used to develop one or
15 more TMDLs. They are requesting data from any
16 interested parties who are interested in the topic
17 of the Illinois River Watershed. And at page 2861,
18 they identify six categories in which they invite
19 data to be submitted by interested parties for the
20 preparation of TMDLs.

21 And this demonstrates that among the
22 information that they are seeking or inviting is
23 information regarding poultry houses, poultry
24 locations, nutrient loadings, any modeling that
25 anyone has done having to do with loading rates.

1 That is simply consistent with what we marked as
2 Defendants' Joint Exhibit 8158, which is the EPA
3 letter which the TMDL and the Chesapeake has been
4 under way. The letter of the President -- the
5 Executive Order of the President merely was, to use
6 a euphemism, kind of like a cattle prod to the
7 government to get its act together -- governments to
8 get their act together and get forward with it.
9 Which they note in the letter that this energized
10 them -- actually, the President energized the
11 prospect. But the letter from the EPA to the
12 Secretary of Natural Resources makes clear that the
13 EPA's position with regard to TMDLs includes
14 developing appropriate mechanisms to ensure that
15 nonpoint source load allocations --

16 MR. NANCE: Your Honor, we're getting into
17 the substance of the document and the truth of the
18 matter asserted. It's clearly hearsay.

19 THE COURT: I'm not going to take it as
20 such just because he's reading it here, Mr. Nance.

21 Let's address the second one just as the
22 first. Under 201(c), the court can decide whether
23 or not it wishes to take judicial notice. Of
24 course, this is in surrebuttal -- well, there is no
25 surrebuttal, as Mr. Nance said.

1 MR. NANCE: And it's not relevant to any
2 rebuttal topic.

3 THE COURT: As contrasted with the first
4 insofar as the first was relevant to a portion of
5 the testimony in the defense side of the case.

6 We'll take it into consideration in the
7 proposed findings and conclusions. I don't know,
8 however, I'm a little skeptical that it's going to
9 be judicially noticed here in this case insofar as
10 it pertains to the Chesapeake Bay.

11 I have not had an opportunity to look at
12 it. It's obviously a multipage document. It looks
13 like it would be about a dozen pages. Does it say
14 generally that the EPA is henceforth going to take
15 into account nonpoint sources in developing TMDLs --

16 MR. TUCKER: Well --

17 THE COURT: -- or just as to the Chesapeake
18 Bay?

19 MR. TUCKER: The letter seems to indicate
20 that that's always been their view, and they don't
21 act as though there is any new to that concept.

22 THE COURT: Well, the fact is, it is. It's
23 clear here on the record that EPA has bit off point
24 sources first, which makes logical sense, and it's
25 going to move into nonpoint sources as time goes on.

1 MR. TUCKER: I think --

2 THE COURT: And it's moving into nonpoint
3 sources, as it should. You know, it's just ordering
4 its priorities. So --

5 MR. TUCKER: For the benefit of the clerk's
6 record, Your Honor, we'd like to give that Federal
7 Register a number, just to avoid that phone call
8 that I know I'll get, which would be Defendants'
9 Joint Exhibit 8159.

10 THE COURT: All right. Certainly.

11 MR. TUCKER: If I may, as a point of
12 personal privilege, since this is the last time I'll
13 be here in the case-in-chief, I'd like on the part
14 of the defendants to thank the court for your
15 incredible patience and consideration of all the
16 parties throughout this very lengthy matter.

17 THE COURT: Well, thank you. I very much
18 appreciate the quality of the legal work on both
19 sides. I'm just utterly astounded. The amount of
20 resources that have been poured into this is
21 mind-boggling.

22 Mr. Nance.

23 MR. NANCE: Your Honor, am I to understand
24 correctly that the Federal Register piece is being
25 noticed, but the letter is not? I just don't know

1 how to deal with it in our findings.

2 THE COURT: No, you misunderstand. I can
3 possibly take judicial notice under 201(c). I may
4 or may not. And I don't have to decide today. So I
5 won't.

6 MR. NANCE: I just wanted to understand
7 what the court had said, and now I do.

8 THE COURT: I'm just giving you an idea.
9 It seems to me that a Federal Register notice,
10 particularly as it pertains to this watershed, may
11 well be something that I ought to take judicial
12 notice of. And if I were sitting on the Tenth
13 Circuit, I'd scratch my head and wonder why that
14 silly judge didn't take judicial notice of it. But
15 I'm not deciding that today. It hit me cold here.

16 It strikes me that the Chesapeake Bay
17 letter probably won't be something that I take
18 judicial notice of. But I also took a fresh look at
19 Rule 52, again (c), and it specifically provides
20 that the court may, however, decline to render any
21 judgment until the close of the evidence. I'm going
22 to decline to enter judgment on the two remaining
23 Rule 52(c) subsets, state public law nuisance and
24 statutory claims, and we'll leave that for findings
25 and conclusions. Particularly since I have to enter

1 findings and conclusions on RCRA. So it's six one,
2 half dozen the other.

3 Mr. Nance.

4 MR. NANCE: Your Honor, on behalf of the
5 State, we also want to thank you for your patience
6 during these considerable proceedings and your
7 attention to a great body of evidence that the State
8 has presented.

9 THE COURT: Well, I hope we can all wrap
10 our mind around this great body of evidence. It's a
11 lot of information. Thank you, Mr. Nance.

12 MR. NANCE: Thank you, Your Honor.

13 THE COURT: Mr. McDaniel.

14 MR. MCDANIEL: Thank you. It's amazing how
15 many miles we've come together in this case, isn't
16 it, Your Honor? When we were walking to the
17 courthouse when this thing started, we walked in the
18 room sweating and pulling our jackets off. We've
19 skated home a number of days. We've been through
20 about three seasons. I've never had a trial that I
21 had to have five haircuts. There's been a lot of
22 pressure on grooming. In fact, some of us in here
23 have just given up on shaving. The pressure is
24 great on everyone; I recognize that.

25 But we have come a long way in the pretrial

1 conference order. We told the court that we were
2 going to try this case in 50 days. Today is the
3 50th day of evidence. So whether inefficiencies
4 were met with efficiencies, either way, we got it
5 done today.

6 THE COURT: I had forgotten that. You had
7 said 50 days.

8 MR. MCDANIEL: So we can say that the pain
9 was entirely unanticipated. We knew it was a
10 difficult case, and we used every bit of time and
11 every bit of the court's patience in getting it
12 done, but here we are at the end, Your Honor.

13 And at least as a matter of formality --
14 and I appreciate the comments the court just made
15 with regard to reserving its rulings under Rule
16 52(c), but the defendants do feel like we need to,
17 as a matter of record, renew and ask the court again
18 to take under consideration all of its Rule 52(c)
19 motions on the remaining claims and that state law,
20 public nuisance, federal common law nuisance,
21 trespass and the violation of the two antipollution
22 statutes, Oklahoma Statutes Title 27A Section
23 2-6-105 and Title 2 Section 2-18.1.

24 And, Your Honor, I, just for simplicity,
25 would like to incorporate our oral motions and all

1 arguments made at the close of the plaintiff's
2 evidence.

3 In our defense case-in-chief, we feel like
4 we dealt with a lot of critical issues, but as the
5 court is quite aware, we tried to focus a lot of our
6 case on rebutting the scientific, technical evidence
7 that the plaintiffs presented in support of their
8 causation arguments.

9 And we presented testimony and analyses of
10 what we certainly contend and believe are some of
11 the nation's top experts in environmental chemistry,
12 hydrology, water quality modeling, agronomy,
13 limnology, fisheries and stream ecology, and water
14 treatment and engineering and epidemiology.

15 And, Your Honor, we feel that the case we
16 presented showed that the plaintiffs have failed to
17 support their claim for causation with sound,
18 well-supported and unbiased science that considered
19 the myriad of potential alternative sources of
20 phosphorus in the complex Illinois River Watershed
21 environment.

22 So, Your Honor, we renew these motions and,
23 in particular, urge that it's clear that the
24 plaintiff's arguments with regard to general
25 causation against the use of poultry litter

1 generally and with regard to specific causation as
2 to each defendant lack support in both law and fact.

3 We submit that these claims cannot stand,
4 and renew our request that the court enter judgment
5 under Rule 52(c). Thank you.

6 THE COURT: The court will exercise the
7 right to decline to render any judgment under 52(c)
8 and will issue findings and conclusions following
9 the submission by the parties and after arguments
10 made by counsel.

11 Is there anything further?

12 MR. BULLOCK: No, sir, not from the
13 plaintiff. Thank you very much.

14 MR. GEORGE: Nothing from the defendants,
15 Your Honor.

16 THE COURT: Well, it's been a journey.
17 Hard to believe it's over. It's over for you. It's
18 not over for me.

19 We have our schedule for the close -- the
20 closing argument. Thank you very much for all your
21 hard work. And we'll look forward to closing
22 arguments on the 11th. Very well. We'll be
23 adjourned.

24 (END OF PROCEEDINGS.)
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REPORTER'S CERTIFICATE

I CERTIFY THAT THE FOREGOING IS A TRUE AND CORRECT
TRANSCRIPT OF THE PROCEEDINGS IN THE ABOVE-ENTITLED
MATTER.

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